

Attached hereto is a marked-up version of the changes made to the specification and claims by this Amendment. The accompanying page is captioned "Version with Markings to Show Changes Made".

The Examiner is thanked for the indicated allowability of claims 66-76 and 85-94. Those claims have been maintained unchanged, save for a minor change to claim 68, and so are believed to remain allowable.

Applicants also wish to thank the Examiner for the personal interview conducted on February 12, 2002. As stated on the Interview Summary form prepared at the interview's conclusion, the arguments presented therein, and which are summarized below, overcame the objection to the specification and the claim rejection based upon 35 U.S.C. § 112, ¶ 2. In preparing this Amendment, Applicants have taken care to proceed in a manner consistent with the discussions between Applicants' attorney and the Examiner during that interview. For example, the number of claims has been substantially reduced, as was discussed, the specification has been amended to claim the priority of international patent application PCT/JP99/02579, and arguments have been presented which distinguish the claimed invention from the cited art for reasons which include the grounds advanced during that meeting. Claims 23-34, 68 and 115 have been amended in the manner discussed with the Examiner during the interview. Claims 27-30 and 32 also have been revised to clarify that the contacts connecting to the semiconductor storage device are disposed on a substrate which is rectangular (the shape of the semiconductor storage devices is no longer specified).

As explained during the personal interview on February 12, 2002, various claims have been revised to change the term "memory device" to --semiconductor storage device-- (to avoid raising any further issues, allowed claims 84 and 86, which use the term "memory device", have not been amended). For consistency, various claims have been revised to use the term

--centerline--, rather than "central line". Also, claim 23 has been amended to recite that the contacts lie in a plane parallel to the centerline of the ink supply port. Support for this feature can be found, for example, in Fig. 11(a-c) and at page 8, lines 11-25 (i.e., "the vertical wall 45 on which the circuit board 31 is fixed is moved possibly in parallel with a locus on which the ink supply port 44 is regulated by the ink supply needle 6"). Claims 23, 32, 68 and 115 have been revised to clarify that the position of the storage device or contacts, relative to the centerline the ink supply port, is judged looking directly toward the storage device or contacts. From the revised claim wording it will be appreciated that the storage device or contacts need not actually lie on the centerline of the ink supply port where that centerline passes through the supply port (this would be inside the supply port, which would not be practical), but rather, need only be spaced in the specified manner relative to that centerline. For example, as shown in Fig. 10, the substrate 31 (on which contacts 60 shown in Fig. 7 are located) is separated from the ink supply port 44 and has contacts lying on the ink supply port's centerline.

It is respectfully submitted that these changes can be considered and entered by the Examiner without undue effort, and should not preclude allowance of this application.

**The Objection
to the Specification**

The specification was objected to because of an alleged typographical error, namely, that at page 4, line 24, Fig. 30 should be Fig. 31.

As explained during the above-mentioned personal interview, this objection is not well-taken because this application does not contain either Figs. 30 or 31. It is believed that this objection may have arisen because of confusion concerning the presence of two different circuit boards 30 and 31 in the depicted structure. As was discussed, it is clear from Figs. 3, 5 and 11(a-c) and the corresponding portions of the specification, such as page 4, lines 23-28, that circuit

board 30 is part of the carriage which receives the ink cartridge, while circuit board 31 is part of the ink cartridge.

Since the text in question accurately describes the depicted structure, it is respectfully submitted that this objection has been overcome. Favorable reconsideration and withdrawal of this objection are respectfully requested.

**The Rejection Under
35 U.S.C. § 112, ¶ 2**

Claims 1-65 and 96-124 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of Applicants' invention. In particular, it was said to be unclear how the overhang member could be disposed between the first and second upper corners of the housing.

First, it will be appreciated that the cancellation of claims 1-22, 35-65, 96-114 and 120-124 renders moot the corresponding portions of this rejection. Accordingly, withdrawal of those portions of this rejection is respectfully requested.

As regards the remaining claims, and for the reasons given during the personal interview, the overhang aspect of the present invention would be clear to those skilled in the art in view of Figs. 3, 4 and 6 and the description of those drawings, taken along with the general knowledge which would be possessed by those of such skill. For example, Figs. 4 and 6 depict both overhang portion 46, which is located between the corners (upper front) of the cartridge 40, and overhang portions 56, each of which is located between the corners (upper front) of the cartridge 50.

Accordingly, favorable reconsideration and withdrawal of this rejection are respectfully requested.

**The Rejections Under
35 U.S.C. § 103**

Claims 1-65 and 96-124 have been rejected under 35 U.S.C. § 103 as being unpatentable over European Patent Appln. No. 0 997 297 to Akahane et al. in view of U.S. Patent No. 6,065,824 to Bullock et al. Applicants respectfully traverse this rejection and submit the following arguments in support thereof.

First, it will be appreciated that the cancellation of claims 1-22, 35-65, 96-114 and 120-124 renders moot the corresponding portions of this rejection. Accordingly, withdrawal of those portions of this rejection is respectfully requested.

With regard to the remaining rejected claims, as pointed out during the personal interview on February 12, those claim rejections are not well-taken and should be withdrawn because Akahane is not prior art as to the present application. More specifically, this application is a continuation-in-part claiming the priority under 35 U.S.C. § 120 of international patent application no. PCT/JP99/02579, filed on May 18, 1999¹. The priority of six Japanese patent applications, the earliest of which was filed on May 18, 1998, is also claimed under 35 U.S.C. § 119.

These priorities were claimed in transmittal letter filed along with this application on January 18, 2000. Although that transmittal letter requested the specification be revised to recite such priority claims, it does not appear that such a revision was made. To insure accuracy, this Amendment formally revises the specification to include those priority claims.

¹ During the personal interview it was pointed out that the drawings in this application, which provide support for the claimed invention, are substantially the same as the drawings in parent application PCT/JP99/02579.

It also was pointed out that Akahane is a counterpart to this application, and, like this application, claims the priority of international patent application no. PCT/JP99/02579 and six Japanese patent applications.

Akahane has an effective date of May 3, 2000. As this date is later than the priority date of May 18, 1999, claimed under 35 U.S.C. § 120, Akahane is not available as prior art against this application. Accordingly, this rejection cannot be maintained, and must be withdrawn.

Claims 77-83 and 95 have been rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,170,940 to Shinada et al. in view of U.S. Patent No. 6,168,262 to Clark et al.

This rejection has been rendered moot by the non-prejudicial cancellation of claims 77-83 and 95 from this application. Accordingly, withdrawal of this rejection is respectfully requested.

**The Present Invention
Avoids the Cited Art**

In the interests of expediting prosecution, Applicants will now briefly discuss, as pointed out during the personal interview, features of the claims felt to avoid the prior art of record, namely, Bullock, Shinada and Clark. It should be understood that any references to this invention in the following passages is illustrative and not limiting, and that discussion of various aspects of the invention does not mean that their presence in the claims should be inferred (unless, of course, those aspects are specifically recited in the claims).

Bullock depicts an ink cartridge having a memory 30 and contacts 32. As depicted in Fig. 1(A-B), and described at col. 3, lines 8-32, Bullock locates the memory and contacts on an inside wall of an internal cavity formed in the body of the ink cartridge. This arrangement is entirely different from and in no way suggestive of Applicant's invention, which positions certain contacts of the semiconductor memory device relative to the centerline of the ink supply port.

Nor would one skilled in the art be led to modify Bullock's structure in a way which would lead to the present invention, since there is no recognition in the art of the benefits of Applicant's arrangement. That is, one cannot argue that it would have been obvious to try and modify Bullock's structure in a way which would lead to the present invention. The "obvious to try" standard is criticized by M.P.E.P. § 2145(X)(B), which recognizes that this is not a proper basis for the combination of citations.

Shinada describes an ink jet cartridge having side ribs 53, as shown in Fig. 15. These side ribs 53 do not even suggest the aspects of claims 1 and 55 relating to an overhang member located between the first and second upper corners of a housing wall.

The characterization of Shinada in the Office Action is also respectfully traversed - the assertion in the Office Action that Shinada, at col. 14, lines 26-31, teaches a contact forming device having contacts members which electrically contact to a memory device is incorrect.

As pointed out during the personal interview, the passage in question describes a circuit board 22 which is part of the signal path through which pass the signals used to energize and thereby drive the recording head itself ("circuit board 622 has a drive circuit for driving the recording head 612, and it is connected to the latter 612 through an FPC 623"). Moreover, Shinada's earlier discussion of these components makes it clear that the components are only involved with transmission of drive signals from the printer apparatus to the ink jet head:

A second electrical connecting section 622 is provided on the rear surface of the casing 62. The second electrical connecting section 622 is made up of a substrate. A plurality of contacts are formed on the surface of the substrate so that they are connected to the contacts 76b of the first electrical connecting section 76 under pressure. The substrate is connected through an FPC 623 to the above-described nozzle driving elements. The arrangement of the second electrical connecting section 622 will be described later in more detail.

(col. 10, lines 58-67).

Shinada also does not even suggest the use of a semiconductor memory device which is part of the ink cartridge, much less a device as claimed.

Turning to the other cited reference, Clark, which is in many ways similar to Bullock, it should be noted that this patent, as shown in Figs. 3(a-d), 4(a-b) and 5, discloses an ink cartridge having an internal contact and memory structure. As can best be seen in Fig. 5, memory 74 and contacts 50 are located on one side wall of an internal cavity 66 extending upward into the bottom of ink container 12. This structure differs from and in no way suggests the aspects of the present invention which relate to the arrangement of various contacts relative to the centerline of the ink supply port. Also, Clark's electrical connector 83 is entirely different from and in no way suggestive of Applicant's contact member of the present invention. As shown in Fig. 5, and described at col. 6, lines 49-57, contacts 51 are located only on one side of Clark's electrical connector 83. While Clark states generally that contacts could be placed on other inner surfaces of the cavity 66 (col. 7, lines 54-65), this in no way suggest the claimed contact arrangement relative to the ink supply port centerline.

None of the cited references suggests the aspects of the present invention relating to the manner in which the contacts are arranged relative to the centerline of the ink supply port. It also should be noted that neither Bullock, Shinada, nor Clark suggests the use of an overhang portion, much less an overhang portion as claimed. Nor does the cited art suggest aspects of the invention recited in dependent claims such as claim 34 providing for locating the semiconductor storage device relative to the centerline of the ink supply port, a feature that is not required by the independent claims.



Thus, it will be appreciated that the invention as described in the pending claims patentably distinguishes over the cited art. Accordingly, favorable reconsideration and prompt allowance of this application is respectfully requested.

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In compliance with the duty of disclosure under 37 C.F.R. § 1.56 and in accordance with the practice under 37 C.F.R. §§ 1.97 and 1.98, the Examiner's attention is directed to the documents listed on the enclosed Form PTO-1449. Copies of the listed references are also enclosed.

Some of the cited references were called to Applicants' attention in an official Search Reports for European Patent Application No. 99 919 640 which is a counterpart to the instant case. A copy of that Search Report is also enclosed, and the Examiner is respectfully directed thereto for a concise explanation of the relevance of the cited art.

It should be noted that with the exception of European Patent Appln. Nos. 0 710 568 and 0 713 778, all of the references identified in the Search Report already are of record in this case. Accordingly, copies of those references have not been provided.

It also should be noted that cited European Patent Appln. Nos. 0 778 148 and 0 778 145 are English-language counterparts to Japanese Patent Appln. Nos. 9-174879 and 9-174876, respectively, and have been cited as a convenience to the Examiner.

Another cited reference, U.S. patent application publication no. 2001/0007458, is a continuation of a reference already of record, U.S. Patent No. 6,227,643, which was itself cited in the Information Disclosure Statement filed on January 2, 2002. Although believed to be cumulative to the '643 patent, this reference has been cited out of an abundance of caution.

Other references were called to Applicants' attention in an official Search Report for European Patent Application No. 00 121 388.3, a counterpart to the instant case. A copy of that Search Report is also enclosed, and the Examiner is respectfully directed thereto for a concise explanation of the relevance of the cited art.

Applicants also take this opportunity to rectify an inadvertent typographical error in the Information Disclosure Statement filed on August 9, 2001. That Information Disclosure Statement cited Japanese Laid-Open Patent Application No. 7-232439, when in fact Japanese Laid-Open Patent Application No. 7-232438 should have been cited. A copy of the correct patent document is enclosed, and this reference is listed on the accompanying PTO/SB/08a form.

It is respectfully requested that the above information be considered by the Examiner and that a copy of the enclosed PTO/SB/08a form be returned indicating that such information has been considered.

This Supplemental Information Disclosure Statement is being filed in accordance with 37 C.F.R. § 1.97(c). The Commissioner is authorized to charge the fee under 37 C.F.R. § 1.17(p) prescribed by 37 C.F.R. § 1.97(c)(2), as well as any other fee which may now or hereafter be due, to Deposit Account No. 19-4709.

CONCLUSION

Applicants respectfully submit that all outstanding objections and rejections have been addressed and are now either overcome or moot. Applicants further submit that all claims pending in this application are patentable over the prior art. Reconsideration and withdrawal of those rejections and objections is respectfully requested.

Applicants respectfully submit that this application is in condition for allowance.
Early and favorable action is earnestly solicited.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADEIN THE SPECIFICATION:

Please insert, prior to the paragraph beginning at page 1, line 5, the following new section heading and paragraph of text:

CROSS-REFERENCE TO RELATED APPLICATIONS

This is a continuation-in-part of PCT Application No. PCT/JP99/02579, filed May 18, 1999, which claims benefit of priority based on Japanese and PCT Application No. 10-151883, filed May 18, 1998, 10-151882, filed May 18, 1998, 10-180519, filed June 26, 1998, 10-266109, filed September 21, 1998, 10-301782, filed October 23, 1998, and 11-78843, filed March 24, 1999.

Please replace the paragraph beginning at page 5, line 4, with the following rewritten paragraph:

Figs. [5(a)] 6(a) and 6(b) show an embodiment of the black ink cartridge 40 and the color ink cartridge 50, a porous member 42 impregnated with ink is respectively housed in containers 41 and 51 formed so that they are substantially paralleloped and the respective upper faces are respectively sealed by the covers 43 and 53.

Please replace the paragraph beginning at page 9, line 27, with the following rewritten paragraph:

Further, even if at least one plate spring 70 protruded at least on the side of the ink supply port is fixed to the side of a free end at the back of the lever 11 as shown in Fig. 15, the



ink cartridge 40 can be fixed in the holder. In this case, it is more effective that non-slip and others are stuck on the side of the free end 70a of the plate spring 70 or on the cover of the ink cartridge.

IN THE CLAIMS:

Please cancel claims 1-22, 35-65, 77-83, 95-114 and 120-124 without prejudice to or disclaimer of the subject matter presented therein.

Please amend claims 23-34, 68 and 115:

23. (Twice amended) An ink cartridge for mounting on a carriage of an ink jet printing apparatus and for supplying ink to a printhead of said ink jet printing apparatus through an ink supply needle, the ink cartridge comprising:
a plurality of external walls, including a first wall and a second wall, defining at least some of a chamber;
an ink supply port for receiving said ink supply needle, the ink supply port having a centerline and communicating with the chamber[, formed on a first of the walls]; [and]
a [memory] semiconductor storage device storing information about the ink carried by said cartridge; and
a plurality of contacts for connecting the [memory] semiconductor storage device to the ink jet printing apparatus, the contacts being formed in a plurality of rows [on a second of said walls intersecting said first wall] lying essentially in a plane parallel to the centerline of the ink supply port, each said



row being centered [on a centerline] relative to the
centerline of said ink supply port.

24. (Twice amended) The ink cartridge according to claim 23, wherein
said [memory] semiconductor storage device [means] is disposed on said [first]
second wall of said housing.

25. (Twice amended) The ink cartridge according to claim 23, wherein
said [memory] semiconductor storage device is disposed on said second wall of
said housing in the vicinity of said ink supply port.

26. (Twice amended) The ink cartridge according to claim 23, wherein
said [memory] semiconductor storage device is disposed on said second wall
which is perpendicular to said first wall of said housing.

27. (Twice amended) The ink cartridge according to claim 23, wherein
said contacts connecting said [memory means is] semiconductor storage device
are disposed on a substrate which is substantially rectangular, and said [memory]
semiconductor storage device is disposed on said second wall which is
substantially perpendicular to said first wall, and said second wall has a shorter
width than the other wall of said housing.

28. (Twice amended) The ink cartridge according to claim 23, wherein
said contacts connecting said [memory] semiconductor storage device [is] are
disposed substantially in parallel with said second wall which is perpendicular to
said first wall of said housing.

29. (Twice amended) The ink cartridge according to claim 23, wherein
said contacts connecting said [memory] semiconductor storage device [is] are
located at an opposite position of a fulcrum of the ink cartridge when it is
mounted on or removed from the printing apparatus.

30. (Twice amended) The ink cartridge according to claim 23, wherein
said contacts connecting said [memory] semiconductor storage device [is] are
disposed on a substrate which is substantially rectangular and directs in a vertical
orientation.

31. (Twice amended) An ink cartridge for mounting on a carriage of an
ink jet printing apparatus and for supplying ink to a printhead of said ink jet
printing apparatus through an ink supply needle, the ink cartridge comprising:
a plurality of external walls defining at least some of a chamber;
an ink supply port for receiving said ink supply needle, the ink
supply port having a centerline and communicating with
the chamber[, formed on one of said walls]; [and]
a [memory] semiconductor storage device storing information
about the ink carried by said cartridge; and
a plurality of contacts for connecting said [memory] semiconductor
storage device to the ink jet printing apparatus, the contacts
being formed in a plurality of rows so that one of said rows
is closer to said ink supply port than an other of said rows,
the row of said contacts which is closest to said ink supply

port being longer than the row of said contacts which is
furthest from said ink supply port.

32. (Twice amended) The ink cartridge according to claim 31, wherein
said [memory device is disposed on said housing and located] contacts, viewing
the ink cartridge in a direction perpendicular to a plane of the contacts, lie on a
[central line] centerline of said ink supply port.

33. (Twice amended) The ink cartridge according to claim 31, wherein
said wall on which said [memory] semiconductor storage device is disposed is
located in the vicinity of said ink supply port.

34. (Twice amended) The ink cartridge according to claim 33, wherein
said [memory] semiconductor storage device is located on a center line of said
wall of said housing on which said [memory] semiconductor storage device is
disposed.

68. (Twice amended) The ink cartridge according to claim 66, wherein
said [memory] semiconductor storage device is [located on] intersected by a plane
passing through a center line of said ink supply port.

115. (Amended) The ink cartridge according to claim 23, wherein,
viewing the ink cartridge in a direction perpendicular to a plane of the contacts,
the electrical contacts of each row are symmetrically disposed about the [central
line] centerline of the ink supply port.

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